February 27, 2002

MODIS sensor Working Group (MsWG) Summary

Attendance: Farida Adimi, Suraiya Ahmad, Bill Barnes, Bob Barnes, Roger Drake, Wayne Esaias, Bob Evans, Gene Feldman, Chris Moeller, Vince Salomonson, Gary Toller, Jack Xiong, Jim Young, Zhengming Wan, Joe Esposito

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Scheduled Items

Item 1. ST Input for Data Reprocess (B26 correction, etc.) and LUT(s) to Miami

(JX) L1B Code and LUT changes for the RSB and TEB have been identified. MCST is aware of the issues and can begin developing the changes that the science team wishes to include in the forward and reprocessing.

(BB) RVS time dependence will affect forward processing. We can change the forward processing in April and reprocess back from October.

(JX) Do we move old LUTs to new LUTs or new LUTs to old LUTs? We will send LUTs to Miami for their use prior to delivery. We can make the code changes and wait on the decision of the implementation start date and time.

(BE) Does Miami need new L1B code?

(JX) Due to the time dependent RVS, Miami would need new code.

(BE) It would be best to work with the new code and LUTs at the same time.

(JX) New code must be delivered to SDST by the end of April.

(BB) There is a meeting on Friday where the delivery timeline will be clarified.

(WE) My understanding is that October delivery is for Land and Atmospheres and only Oceans will be delivered in April.

(JX) MCST can start to implement the given corrections and code structure for new RVS.

(BB) We need to know if any Land or Atmospheres corrections need to be placed into L1B.

(BE) For the November-January, 2001 data all the bands track consistently. During the June-July, 2001 time period, the Northern Hemisphere is consistent with Nov-Jan but the Southern Hemisphere worsens as you progress southward with the mirror sides diverging mainly for band 8 and 9.

(JX) The new code will contain the time dependent RVS correction. m_1 trending shows that the mirror side ratio changed while the mirror was fixed during between June 15 and July 2. Since this change was not included in the fitted m_1, then a discontinuity will be seen due to the difference between fitted and measured m_1.

(CM) We (MCST) recently spoke about A0 and A2. We need to consider changes in A0 and A2 for the reprocessing.

(CM) The terms (A0 and A2) are gotten from the BB. We can force A0 to zero for only the atmospheric bands. We see the effect in bands 33-36. MCST will send CM some analysis charts.

(BB) Do we have this problem on Aqua?

(JX) The same algorithm will be used (with $A0 \equiv 0$)

Item 2. Influence of B5 (1.2um) on B26

(CM) In my analysis I consider 1%-1% RSR (inband), Out of Band (OOB) contribution(s), and electronic cross talk.
First the in-band radiance is removed. The primary source OOB source into B26 is the 1.3um leak. Other OOB leaks contribute negligibly.
The data from 2001153, 2001155, and 2000341 track well. What is causing the scatter of B26 x B5?
Chart shows B26 x B7. Australia is an outlier in the data. In the previous chart (B26 x B5) Australia lies near B5 = 45 W/m^2 x B26= 0.5 W/m^2. Scatter is at least in part due to electronic cross talk.
The next chart depicts B26 x B7. See that various detectors have the same slope, scatter is larger. This implies a weaker relation between B26 and B7. A significant non-linearity is needed to fit the low B7 data. Simplicity suggests this is not what is needed, a linear approach should be used. It is better to stick with the B5 correction and not include B7.
Combined analysis, all data from Bside, is well behaved (B26 x B5). Fairly straight lines explain the variance in the plot. I get the influence coefficients from the data on these three days. The 0.07 < RMS < 0.11 is 1-2% of the B26 Ltyp. I feel comfortable with the Bside analysis.

(JX) When will you do first and second Aside analyses?
(CM) This is still to be done. The thermal impact appears negligible.
(BB) This appears pretty well set.
(JX) MCST can use average rather than aggregate for analysis. The aggregate is weighted and can be slightly different than the average response.
(CM) The correction can cause negative B26 values.
(JX) As long as it is above the allowed minimum we are okay. Only when B26 is near 0 will negative values occur.
(CM) This will occur only when the precipitated water level is high. I should take a trip to MCST to hash this out. The end of March may be possible.
(JX) We (MCST) also need a Miami trip.
(BB) Sometime after launch may be good for a trip (to Miami).

Item 3. Solar Spectra (Current vs. Thuillier)

(JX) Should we use the current (MCST) spectrum or the new Thuillier spectrum?
(Bob) The Thuillier 2002 spectrum has been "blessed: by CEOS.
(BB) Plot of current to new Thuillier spectrum will be sent to Miami.
Action: MCST to send Spectrum charts to Miami.

Around the Table

Participant: Bob Evans – We must be clear on forward and pre-processing

Participant: Bill Barnes – There will be no MsWG meeting next week (March 6, 2002)